CLAIMS

1. A gateway (GW; Fig. 5a; Fig. 6) for forwarding transmission information (TI, TI', TI'') between a first terminal node (CN) of a first network (IN) and a second terminal node (RN1-RN4; MN) of an ad hoc network (AHN), comprising:

   a) a transmission/reception unit (TRG) adapted to receive transmission information (TI, TI', TI'') from said first terminal node (CN) and to transmit said transmission information (TI, TI', TI'') to said second terminal node (RN1-RN4; MN); and

   b) an acknowledgment information detection unit (ACKM) adapted to detect the receipt of acknowledgment information (ACTAN, ACTAN', ACTAN'') from said second terminal node (RN1-RN4; MN) acknowledging that said second terminal station (RN1-RN4; MN) has received said transmission information (TI, TI', TI'').

2. The gateway (GW; Fig. 6) according to claim 1, ***further characterized by***
   an accounting unit (ACC') adapted to determine charging information (CH) for the transmission of said transmission information (TI, TI', TI'') to said second terminal node (RN1-RN4; MN) if said acknowledgment information detection unit (ACKM) detects the receipt of acknowledgment information (ACTAN, ACTAN', ACTAN'') for the transmission of said transmission information (TI, TI', TI'') to said second terminal station (RN1-RN4; MN).

3. The gateway (GW; Fig. 6) according to claim 1,

further characterized by
a transmission information characteristics determining unit (TIM) adapted to determine transmission characteristics (TCH) of the transmission of said transmission information (TI, TI', TI'') to said second terminal node (RN1-RN4; MN).

4. The gateway (GW; Fig. 4a-c) according to claim 1,
further characterized in that
said transmission information characteristics determining unit (TIM) is adapted to determine as said transmission characteristics (TCH) one or more selected from the group consisting of a data amount (DAM), a transmission speed (TRT), a transmission route (MR, AR) along which said transmission information (TI, TI', TI'') has been transmitted to said second terminal node (RN1-RN4; MN), and a delay time of the packet transmission.

5. The gateway (GW; Fig. 4a-c) according to claim 2 and 3,
further characterized in that
said accounting unit (ACC') is adapted to determine said charging information (CH) on the basis of said transmission characteristics (TCH).

6. The gateway (GW; Fig. 4b; Fig. 6) according to claim 4,
further characterized by
a transmission information memory (TIS') adapted to store one or more selected from the group consisting of a source address (SAC) and a destination address (TA) of said transmission information (TI, TI', TI''), said determined transmission characteristics (TCH), said determined charging information (CH), and said acknowledgment information (ACTAN).

7. The gateway (GW; Fig. 5a) according to claim 1, ***further characterized in that*** said second ad hoc network (AHN) is a packet switched network (AHN), said transmission information (TI, TI', TI'') comprises one or more transmission packets (IP1-IP5), and said acknowledgement information (ACTAN, ACTAN', ACTAN'') comprises one or more acknowledgment packets (ACK1-ACK5).

8. The gateway (GW; Fig. 4c) according to claim 3 and 7, ***further characterized in that*** said transmission characteristics determining unit (TIM) is adapted to determine said transmission characteristics (TCH) for each acknowledged transmission packet (IP1-IP5) of said transmission information (TI, TI', TI'').

9. The gateway (GW; Fig. 4c) according to claim 4 and 7, ***further characterized in that*** said transmission information memory (TIS') is adapted to store said transmission characteristics (TCH) for each transmission packet (IP1-IP5) of said transmission information (TI, TI', TI'').

10. The gateway (GW; Fig. 6; Fig. 4c; Fig. 7) according to claim 7, ***further characterized by*** a sequence number insertion unit (SNI) adapted to insert into each transmission packet (IP1-IP5) a sequence number (SN; 1, 2, 3, 4, 5) indicating the transmission order of the respective transmission packet (IP1-IP5) in a sequence of transmission packets (IP1-IP5).

11. The gateway (GW; Fig. 6; Fig. 7) according to claim 10,

further characterized by
a transmission window unit (WIN) adapted to set a predetermined transmission window (WT) for said transmission/reception unit (TRG) to successively transmit transmission packets (IP1-IP3) to said second terminal node (RN1-RN4; MN); wherein

said transmission/reception unit (TRG) is adapted to successively transmit to said second terminal node (RN1-RN4; MN) transmission packets (IP1-IP3) within said transmission window (WT); and wherein
said transmission/reception unit (TRG) is adapted to slide said transmission window (WT) one or more packets to form a new transmission window (WT', WT'', WT''') and to successively transmit to said second terminal node (RN1-RN4; MN) one or more successive transmission packets (IP4, IP5) within said new transmission window (WT', WT'', WT''') which have not already been transmitted in the previous transmission window (WT) whenever the receipt of an acknowledgment packet (ACK1, ACK2), acknowledging the receipt of a transmission packet (IP1-IP3) of the previous transmission window (WT), is detected by said acknowledgment information detection unit (ACKM).

12. The gateway (GW; Fig. 7) according to claim 11,
further characterized in that
said transmission window (WT) is one of the group consisting of a transmission time window indicating a predetermined transmission time period, a transmission window number of successive transmission packets, and a transmission window data amount indicating a predetermined amount of data to be transmitted in one or more of said successive transmission packets (IP1-IP3).

13. The gateway (GW) according to claim 12,
further characterized in that
said transmission window data amount (e.g. 1 MB) is the product between the transmission speed (TRT; e.g. 1 MB/s) on the transmission route (MR, AR) between said gateway (GW) and said second terminal (RN1-RN4; MN) and the round trip time (RTT, e.g 1s) which is the minimum time the gateway (GW) has to wait between transmitting a transmission packet (IP1-IP3) and receiving an acknowledgment packet (ACK1-ACK3) thereof.

14. The gateway (GW; Fig. 8, 9) according to claim 11,
further characterized by
a lost packet detector (LPD) adapted to detect that an acknowledgement packet (ACK2; Fig. 8) or a transmission packet (IP2; Fig. 9) has gone lost during its transmission if after transmission of a predetermined number of transmission packets (IP1-IP3) in the transmission window set by said transmission window unit (WIN), the sequence numbers (SN) in successive acknowledgment packets (ACK1, ACK3) do not match with those set in the successive transmission packets (IP1-IP3).

15. The gateway (GW; Fig. 10) according to claim 11,
further characterized by
said lost packet detector (LPD) comprising a timer (T) adapted to count a predetermined time duration (ΔT), said timer (T) being started with each new transmission of a transmission packet (IP1-IP3), being stopped if an acknowledgement packet is received for the last transmitted transmission packet within said predetermined time duration (ΔT) or ,if not being stopped by the receipt of an acknowledgment packet,

said timer (T) expiring, wherein said TRN stops transmission.

16. The gateway (GW; Fig. 11; Fig. 8, 9) according to claim 7, ***further characterized by***
an acknowledgment request unit (SOL) adapted to transmit to said second terminal node (MN) an acknowledgment request packet (SOL_ACK3) including a predetermined sequence number (SN) of a transmission packet (IP3) which was transmitted but for which no acknowledgement information has as yet been detected by said acknowledgment information detection unit (ACKM), said acknowledgment request message (SOL_ACK3) requesting from said second terminal node (MN) the transmission of an acknowledgment packet (ACK3) acknowledging the receipt of the transmission packet (IP3) having said predetermined sequence number (IP3).

17. The gateway (GW; Fig. 11; Fig. 8, 9) according to claim 16 and 15, ***further characterized in that***
if said timer (T) times out and no acknowledgment information is detected by said acknowledgment information detection unit (ACKM) within said time duration after transmission of the last transmission packet (IP3) in said transmission window (WT), said acknowledgment request unit (SOL) is adapted to transmit to said second terminal node (MN) an acknowledgment request packet (SOL_ACK3) including the sequence number (SN) of the last transmission packet (IP3) transmitted in the transmission window (WT).

18. The gateway (GW; Fig. 12; Fig. 8, 9) according to claim 15 and 17, ***further characterized in that***
said timer (T) is also started when said acknowledgment request unit (SOL) starts transmitting said acknowledgment request package (SOL_ACK3), wherein if said timer (T) times out thereafter and no

acknowledgment information is detected by said acknowledgment information detection unit (ACKM) within said time duration after transmission of said acknowledgment request package (SOL_ACK3), said transmission/reception unit (TRG) stops transmission of further transmission packets.

19. The gateway (GW; Fig. 13, Fig. 14) according to claim 1,
further characterized by
a route check unit (RC) adapted to detect whether a transmission route (MR, AR) to said second terminal node (MN) exists.

20. The gateway (GW; Fig. 13) according to claim 19 and 17,
further characterized by
said acknowledgment request unit (SOL) is adapted to transmit to said second terminal node (MN) said acknowledgment request packet (SOL_ACK3) if after said timer times out, said route check unit (RC) detects that a transmission route (MR, AR) exists.

21. The gateway (GW; Fig. 14) according to claim 19 and 17,
further characterized by
said transmission/reception unit (TRG) stops transmission of further transmission packets if after said timer times out, said route check unit (RC) detects that no transmission route (MR, AR) exists.

22. The gateway (GW; Fig. 15) according to claim 7,
further characterized in that
said transmission/reception unit (TRG) is adapted to retransmit an already transmitted transmission packet (IP2) having a specific sequence number (2) in

response to receiving a retransmission request packet (SEL_ACK3(2); SEL_ACK4(2)) including said specific sequence number (2; 2) from said second terminal node (MN).

23. The gateway (GW; Fig. 16a, Fig. 16b) according to claim 1, ***further characterized in that*** said transmission/reception unit (TRG) comprises a first tunnel setup unit (IPTUN) for setting up a first tunnel link (TUN1) between said gateway (GW) and said second terminal node (MN), wherein said transmission/reception unit (TRG) transmits said transmission information (TI, TI', TI'') and receives said acknowledgment information (ACTAN, ACTAN', ACTAN'') to and from said second terminal node (MN) respectively through said first tunnel link (TUN1).

24. The gateway (GW; Fig. 16a, Fig. 16b) according to claim 7 an claim 23, ***further characterized in that*** said first tunnel setup unit (IPTUN) sets up said first tunnel link (TUN1) by encapsulating transmission packets (IPx) into modified transmission packets (IPxx) generated and transmitted by said transmission/reception unit (TRG).

25. The gateway (GW; Fig. 16a, Fig. 16b) according to claim 24, ***further characterized in that*** said first tunnel setup unit (IPTUN) is adapted to respectively encapsulate a transmission packet (IPx) received from said first terminal node (CN) and having a global source address (SAC; S:1.1) of said first terminal node (CN) and a global destination address (GAN; D:2.2) of said second terminal node (MN) into a modified transmission packet (IPxx) having an ad hoc source address (ADAG; S:A) of said gateway (GW) and an

ad hoc destination address (ADAN; D:D) of said second terminal node (MN).

26. The gateway (GW; Fig. 17) according to claim 23, ***further characterized in that*** said transmission/reception unit (TRG) comprises a second tunnel setup unit (TCPTUN) for setting up a second tunnel link (TUN2) encapsulated within said first tunnel link (TUN1) between said gateway (GW) and said second terminal node (MN), wherein said transmission/reception unit (TRG) transmits said transmission information (TI, TI', TI'') and receives said acknowledgment information (ACTAN, ACTAN', ACTAN'') to and from said second terminal node (MN) respectively by using said second tunnel link (TUN2) encapsulated within said first tunnel link (TUN1).

27. The gateway (GW; Fig. 17) according to claim 7 and claim 26 and 24, ***further characterized in that*** said second tunnel setup unit (TCPTUN) sets up said second tunnel link (TUN2) by encapsulating transmission packets (IPx) received from said first terminal node (CN) into modified transmission packets (IPx') generated by said transmission/reception unit (TRG); and said transmission packets (IPx'), which are encapsulated by said first tunnel setup unit (IPTUN) into said modified transmission packets (IPxx') transmitted by said transmission/reception unit (TRG), are said modified transmission packets (IPx') encapsulated by said second tunnel setup unit (TCPTUN).

28. The gateway (GW; Fig. 16a, Fig. 16b; Fig. 18) according to claim 23, ***further characterized in that***

said first tunnel set up unit (IPTUN) sets up as said first tunnel link (TUN1) an IP (Internet Protocol) protocol tunnel.

29. The gateway (GW; Fig. 17; Fig. 18) according to claim 26, ***further characterized in that***
said second tunnel set up unit (TCPTUN) sets up as said second tunnel link (TUN2) a TCP (Transfer Control Protocol) protocol or a stack of L2TP (Layer-2-Tunneling-Protocol) protocol, a PPP (Point-to-Point Protocol) protocol and a UDP (User Datagram Protocol) protocol.

30. A terminal node (RN1-RN4; MN; Fig. 5a; Fig. 6) of an ad hoc network (AHN) for exchanging transmission information (TI, TI', TI'') with another terminal node (CN) of another network (IN) connected to said ad hoc network (AHN) through a gateway (GW), comprising:

a) a transmission/reception unit (TRN) adapted to receive transmission information (TI, TI', TI'') from said another terminal node (CN) through said gateway (GW); and

b) an acknowledgment information transmission unit (ACKSN) adapted to transmit to said gateway (GW) acknowledgment information (ACTAN, ACTAN', ACTAN'') acknowledging that said transmission/reception unit (TRN) has received said transmission information (TI, TI', TI'').

31. The terminal node (RN1-RN4; MN) according to claim 30, ***further characterized in that***
said ad hoc network (AHN) is a packet switched network (AHN), said transmission information (TI, TI', TI'') comprises one or more transmission packets (IP1-IP5),

and said acknowledgement information (ACTAN, ACTAN', ACTAN'') comprises one or more acknowledgment packets (ACK1-ACK5).

32. The terminal node (RN1-RN4; MN; Fig. 7) according to claim 31, ***further characterized by***
a sequence number determining unit (SND) adapted to determine in each received packet (IP1-IP5, Fig. 7; SOL_ACK3, Fig. 11) a sequence number (SN; 1, 2, 3, 4, 5) indicating the transmission order of the respective transmission packet (IP1-IP5) in a sequence of transmission packets (IP1-IP5); wherein

said acknowledgment information transmission unit (ACKSN) is adapted to transmit to said gateway (GW) acknowledgment packets (ACK1-ACK5) respectively containing the detected sequence number (SN; 1, 2, 3, 4, 5) of the received packet (IP1-IP5) whose receipt is to be acknowledged with said respective acknowledgment packet (ACK1-ACK5).

33. The terminal node (RN1-RN4; MN; Fig. 11) according to claim 32, ***further characterized in that***
said sequence number determining unit (SND) is adapted to determine a sequence number (SN; 1, 2, 3, 4, 5) in a received transmission packet (IP1-IP3) or in an received acknowledgment request packet (SOL_ACK3), said acknowledgment request message (SOL_ACK3) requesting from said second terminal node (MN) the transmission of an acknowledgment packet (ACK3) acknowledging the receipt of the transmission packet (IP3) having said determined sequence number (IP3).

34. The terminal node (RN1-RN4; MN; Fig. 15) according to claim 30, ***further characterized by***

a packet retransmission request unit (ARQ) adapted to transmit to said gateway (GW) a retransmission request packet (SEL_ACK3(2); SEL_ACK4(2)) including a sequence number (2; 2) of a transmission packet (IP2; IP2) which is requested to be retransmitted from said gateway (GW).

35. The terminal node (RN1-RN4; MN; Fig. 16a, 16b) according to claim 30, ***further characterized in that*** said transmission/reception unit (TRN) comprise a first tunnel setup unit (TUN1) for setting up a first tunnel link (TUN1) between said second terminal node (MN) and said gateway (GW), wherein said transmission/reception unit (TRG) receives said transmission information (TI, TI', TI'') and transmits said acknowledgment information (ACTAN, ACTAN', ACTAN'') from and to said gateway (GW) respectively through said first tunnel link (TUN1).

36. The terminal node (RN1-RN4; MN; Fig. 16a, 16b) according to claim 35, ***further characterized in that*** said transmission/reception unit (TRG) comprises a second tunnel setup unit (TCPTUN) for setting up a second tunnel link (TUN2) encapsulated within said first tunnel link (TUN1) between said terminal node (MN) and said gateway (GW), wherein said transmission/reception unit (TRG) receives said transmission information (RI, TI', TI'') and transmits said acknowledgment information (ACTAN, ACTAN', ACTAN'') from and to said gateway (GW) respectively through said second tunnel link (TUN2) encapsulated within said first tunnel link (TUN1).

37. A communication system (SYS) including a first network (IN) with at least a first terminal node (CN), an ad hoc network (AHN) with at least a second terminal node

(RN1-RN4; MN), and a gateway (GW; Fig. 5a; Fig. 6) for forwarding transmission information (TI, TI', TI'') between said first terminal node (CN) of said first network (IN) and said second terminal node (RN1-RN4; MN) of said ad hoc network (AHN), wherein said gateway (GW) is constituted in accordance with on or more of claims 1 to 30 and wherein said second terminal node (RN1-RN4; MN) is constituted in accordance with one or more of claims 30 to 36.

38. A method (Fig. 5b) for forwarding transmission information (TI, TI', TI'') between a first terminal node (CN) of a first network (IN) of a communication system (SYS) and a second terminal node (RN1-RN4; MN) of an ad hoc network (AHN) of said communication system (SYS), comprising the following steps in a gateway (GW) of said communication system (SYS):

a) receiving (S5c1), in said gateway (GW) of said communication system (SS), transmission information (TI, TI', TI'') from said first terminal node (CN) and transmitting (S5c2), from said gateway (GW), said transmission information (TI, TI', TI'') to said second terminal node (RN1-RN4; MN);

b) detecting (S5c5), in said gateway (GW), the receipt of acknowledgment information (ACTAN, ACTAN', ACTAN'') from said second terminal node (RN1-RN4; MN) acknowledging that said second terminal station (RN1-RN4; MN) has received said transmission information (TI, TI', TI'').

39. A method (Fig. 5b) for forwarding transmission information (TI, TI', TI'') between a first terminal node (CN) of a first network (IN) of a communication

system (SYS) and a second terminal node (RN1-RN4; MN) of an ad hoc network (AHN) of said communication system (SYS), comprising the following steps in said second terminal node (MN):

a) receiving (S5c3), in said second terminal node (MN) transmission information (TI, TI', TI'') from a gateway (GW) of said communication system (SYS); and

b) transmitting (S5c4), from said second terminal node (MN), to said gateway (GW) acknowledgment information (ACTAN, ACTAN', ACTAN'') acknowledging that said second terminal node (MN) has received said transmission information (TI, TI', TI'').

40. A method (Fig. 5b) for forwarding transmission information (TI, TI', TI'') between a first terminal node (CN) of a first network (IN) of a communication system (SYS) and a second terminal node (RN1-RN4; MN) of an ad hoc network (AHN) of said communication system (SYS), comprising the following steps in said communication system (SYS):

a1) receiving (S5c1), in a gateway (GW) of said communication system (SS), transmission information (TI, TI', TI'') from said first terminal node (CN) and transmitting (S5c2), from said gateway (GW), said transmission information (TI, TI', TI'') to said second terminal node (RN1-RN4; MN);

a2) receiving (S5c3), in said second terminal node (MN), said transmission information (TI, TI', TI'') from said gateway (GW);

b1) transmitting (S5c4), from said second terminal node (MN), to said gateway (GW) acknowledgment information (ACTAN, ACTAN', ACTAN'') acknowledging that said second terminal node (MN) has received said transmission information (TI, TI', TI''); and

b2) detecting (S5c5), in said gateway (GW), the receipt of said acknowledgment information (ACTAN, ACTAN', ACTAN'') from said second terminal node (RN1-RN4; MN) acknowledging that said second terminal station (RN1-RN4; MN) has received said transmission information (TI, TI', TI'').

41. The method according to claim 38 or 40, ***further characterized by*** determining (S57), in said gateway (GW), charging information (CH) for the transmission of said transmission information (TI, TI', TI'') to said second terminal node (RN1-RN4; MN) if the receipt of acknowledgment information (ACTAN, ACTAN', ACTAN'') for the transmission of said transmission information (TI, TI', TI'') to said second terminal station (RN1-RN4; MN) is detected.

42. The method according to claim 38 or 40, ***further characterized by*** determining (S54) transmission characteristics (TCH) of the transmission of said transmission information (TI, TI', TI'') to said second terminal node (RN1-RN4; MN).

43. The method according to claim 38 or 40, ***further characterized by***

determining (S54) as said transmission characteristics (TCH) one or more selected from the group consisting of a data amount (DAM), a transmission speed (TRT), a transmission route (RT; MR, AR) along which said transmission information (TI, TI', TI'') has been transmitted to said second terminal node (RN1-RN4; MN), and a delay time of the packet transmission along the transmission route to the second terminal node (MN).

44. The method according to claim 42 and 43,
further characterized by
determining (S57) said charging information (CH) on the basis of said transmission characteristics (TCH).

45. The method according to claim 39 or 40 or 41,
further characterized in that
said second ad hoc network (AHN) is a packet switched network (AHN), said transmission information (TI, TI', TI'') comprises one or more transmission packets (IP1-IP5), and said acknowledgement information (ACTAN, ACTAN', ACTAN'') comprises one or more acknowledgment packets (ACK1-ACK5).

46. The method according to claim 45,
further characterized by
inserting (S71) into each transmission packet (IP1-IP5) a sequence number (SN; 1, 2, 3, 4, 5) indicating the transmission order of the respective transmission packet (IP1-IP5) in a sequence of transmission packets (IP1-IP5).

47. The method according to claim 45,
further characterized by
setting (S7111) a predetermined transmission window (WT) to successively transmit transmission packets

(IP1-IP3) to said second terminal node (RN1-RN4; MN); and

successively transmitting (S72, S721, S722) to said second terminal node (RN1-RN4; MN) transmission packets (IP1-IP3) within said transmission window (WT);

detecting (S61) the receipt of an acknowledgment packet (ACK1-ACK3) from said second terminal node (RN1-RN4) for said transmission packets (IP1-IP3) and sliding said transmission window (WT) one or more packets to form a new transmission window (WT', WT'', WT'''); and
successively transmitting to said second terminal node (RN1-RN4; MN) one or more successive transmission packets (IP4, IP5) within said new transmission window (WT', WT'', WT''') which have not already been transmitted in the previous transmission window (WT).

48. The method according to claim 47,
further characterized in that
said transmission window (WT) is one of the group consisting of a transmission time window indicating a predetermined transmission time period, a transmission window number of successive transmission packets, and a transmission window data amount indicating a predetermined amount of data to be transmitted in one or more of said successive transmission packets (IP1-IP3).

49. The method according to claim 45,
further characterized by
detecting (S81, S82; S91, S92) that an acknowledgement packet (ACK2; Fig. 8) or a transmission packet (IP2; Fig. 9) has gone lost during its transmission if after

transmission of a predetermined number of transmission packets (IP1-IP3) in the transmission window set by said transmission window unit (WIN), the sequence numbers (SN) in successive acknowledgment packets (ACK1, ACK3) do not match with those set in the successive transmission packets (IP1-IP3).

50. The method according to claim 45,
further characterized by
counting (S103', S108'), with a timer (T) in said gateway (GW), a predetermined time duration (ΔT), said timer (T) being started with each new transmission of a transmission packet (IP1-IP3) and being stopped if an acknowledgement packet is received for the last transmitted transmission packet within said predetermined time duration (ΔT).

51. The method according to claim 39 or 41,
further characterized by
transmitting (S114), from said gateway (GW) to said second terminal node (MN), an acknowledgment request packet (SOL_ACK3) including a predetermined sequence number (SN) of a transmission packet (IP3) which was transmitted but for which no acknowledgement information has as yet been detected in said gateway (GW), said acknowledgment request message (SOL_ACK) requesting from said second terminal node (MN) the transmission of an acknowledgment packet (ACK3) acknowledging the receipt of the transmission packet (IP3) having said predetermined sequence number (IP3).

52. The method according to claim 45 and 46,
further characterized in that
if said timer (T) times out and no acknowledgment information is detected by said acknowledgment information detection unit (ACKM) within said time duration after transmission of the last transmission

packet (IP3) in said transmission window, transmitting (S114) to said second terminal node (MN) an acknowledgment request packet (SOL_ACK3) including the sequence number (SN) of the last transmission packet (IP3) transmitted in the transmission window.

53. The method according to claim 43 and 45,
further characterized in that
said timer (T) is also started when transmitting said acknowledgment request package (SOL_ACK3), wherein if said timer (T) times out thereafter and no acknowledgment information is detected within said time duration after transmission of said acknowledgment request package (SOL_ACK3), the transmission of further transmission packets is stopped.

54. The method according to claim 38 or 41,
further characterized by
detecting (S132, S142) whether a transmission route (MR, AR) to said second terminal node (MN) exists.

55. The method according to claim 45,
further characterized by
re-transmitting (S157, S159) an already transmitted transmission packet (IP2) having a specific sequence number (2) in response to receiving a retransmission request packet (SEL_ACK3(2); SEL_ACK4(2)) including said specific sequence number (2; 2) from said second terminal node (MN).

56. The method according to claim 38 or 41,
further characterized by
setting up a first tunnel link (TUN1) between said gateway (GA) and said second terminal node (MN) and

transmitting said transmission information (RI, TI', TI'') and receiving said acknowledgment information (ACTAN, ACTAN', ACTAN'') to and from said second terminal node (MN) respectively through said first tunnel link (TUN1).

57. The method according to claim 44 and claim 56, ***further characterized by***
setting up said first tunnel link (TUN1) by encapsulating transmission packets (IPx) received from said first terminal node (CN) into modified transmission packets (IPxx).

58. The method according to claim 57, ***further characterized by***
setting up said first tunnel (IPTUN) by respectively encapsulating a transmission packet (IPx) received from said first terminal node (CN) and having a global source address (SAC; S:1.1) of said first terminal node (CN) and a global destination address (GAN; D:2.2) of said second terminal node (MN) into a modified transmission packet (IPxx) having an ad hoc source address (ADAG; S:A) of said gateway (GW) and an ad hoc destination address (ADAN; D:D) of said second terminal node (MN).

59. The method according to claim 56, ***further characterized by***
setting up a second tunnel link (TUN2) encapsulated within said first tunnel link (TUN1) between said gateway (GA) and said second terminal node (MN), wherein said transmission information (RI, TI', TI'') is transmitted and said acknowledgment information (ACTAN, ACTAN', ACTAN'') is received to and from said second terminal node (MN) respectively through said

second tunnel link (TUN2) encapsulated within said first tunnel link (TUN1).

60. The method according to claim 45 and claim 46 and 47, ***further characterized in that***
said setting up of said second tunnel link (TUN2) is performed by encapsulating transmission packets (IPx) received from said first terminal node (CN) into modified transmission packets (IPx'); and

said transmission packets (IPx'), which are encapsulated into said modified transmission packets (IPxx') in said first tunnel (IPTUN), are said modified transmission packets (IPx') encapsulated by said second tunnel setup unit (TCPTUN).

61. The method according to claim 39, ***further characterized in that***
said ad hoc network (AHN) is a packet switched network (AHN), said transmission information (TI, TI', TI'') comprises one or more transmission packets (IP1-IP5), and said acknowledgement information (ACTAN, ACTAN', ACTAN'') comprises one or more acknowledgment packets (ACK1-ACK5).

62. The method according to claim 61, ***further characterized by***
determining (S73) in each received packet (IP1-IP5, Fig. 7; SOL_ACK3, Fig. 11) a sequence number (SN; 1, 2, 3, 4, 5) indicating the transmission order of the respective transmission packet (IP1-IP5) in a sequence of transmission packets (IP1-IP5); and

transmitting (S74) to said gateway (GW) acknowledgment packets (ACK1-ACK5) respectively containing the detected sequence number (SN; 1, 2, 3, 4, 5) of the received packet (IP1-IP5) whose receipt is to be

acknowledged with said respective acknowledgment packet (ACK1-ACK5).

63. The method according to claim 62,
further characterized by
determining (S75) a sequence number (SN; 1, 2, 3, 4, 5) in a received transmission packet (IP1-IP3) or in a received acknowledgment request packet (SOL_ACK3), said acknowledgment request message (SOL_ACK3) requesting from said second terminal node (MN) the transmission of an acknowledgment packet (ACK3) acknowledging the receipt of the transmission packet (IP3) having said determined sequence number (IP3).

64. The method according to claim 63,
further characterized by
transmitting (S55'') to said gateway (GW) a retransmission request packet (SEL_ACK3(2); SEL_ACK4(2)) including a sequence number (2; 2) of a transmission packet (IP2; IP2) which is requested to be retransmitted from said gateway (GW).

65. The method according to claim 39,
further characterized by
setting up (S52', S56'; S52'') a first or first and second tunnel link (TUN1, TUN2) between said second terminal node (MN) and said gateway (GW) wherein reception of said transmission information (TI, TI', TI'') and said transmission of said acknowledgment information (ACTAN, ACTAN', ACTAN'') from and to said gateway (GW) is performed respectively through said first tunnel link (TUN1) or through said second tunnel link (TUN2) encapsulated in said first tunnel link (TUN1).

66. A computer program product, comprising code sections for respectively carrying out the functions of the respective units of the gateway (GW) in accordance with one or more of claims 1 to 30.

67. A computer program product, comprising code sections for respectively carrying out the functions of the respective units of the terminal node (RN1-RN4; MN) in accordance with one or more of claims 31 to 38.

68. A computer program product, comprising code sections adapted to respectively carry out one or more of the method steps in accordance with one or more of the method claims 40 to 67.